(Figs. 2B-2D) contact between the electrodes is obtained by the binding of the target to the different recognition moieties.

Page 21, lines 20-23, delete current paragraph and insert therefor:

Figs. 3A-3E show a different combination of recognition moieties, immobilized on at least one electrode of an assay device for the detection of target entities, in accordance with several different embodiments of the invention.

Page 21, lines 24-26, delete current paragraph and insert therefor:

Figs. 4A-4C are schematic illustrations of three embodiments of the invention where the recognition moiety is immobilized on a support member which is other than an electrode.

Page 21, lines 27-29, delete current paragraph and insert therefor:

Figs. 5A-5C are schematic illustrations of an assay device and the performance of a method in accordance with an embodiment of the invention, e showing the assay set before (Fig. 5A) and after brought into contact with the target (Fig. 5B) to form a path for the formation of a functionalized bridge (Fig. 5C).

Page 22, lines 1-2, delete current paragraph and insert therefor:

Figs. 6A-6C are schematic illustration illustrations of an embodiment of the invention where the concentration of the target can be determined. Fig. 6A shows the assay device before contacting the recognition moieties with the target while, Figs. 6B and 6C show, respectively, the result of contact between the recognition moieties and low or high concentrations of the target.

Page 22, lines 3-4, delete current paragraph and insert therefor:

Figs. 7A-7C are schematic illustration illustrations of another embodiment of the invention for determining concentration of the target in the sample. Fig. 7A shows the assay device before contacting the recognition moieties with the target while, Figs. 7B and 7C show,

respectively, the result of contact between the recognition moieties and low or high concentrations of the target.

Page 22, lines 5-6, delete current paragraph and insert therefor:

Fig. 8 is a schematic illustration of a multiplexing embodiment of the invention for detection of a variety of different target entities.

Page 22, lines 7-8, delete current paragraph and insert therefor:

Figs. 9A-9D are schematic illustrations of different assay sets (Fig. 9A) which can bind to different epitopes (Fig. 9B-9D) to form a bridge in corresponding assay set, in accordance with one embodiment of the invention.

Page 22, lines 9-10, delete current paragraph and insert therefor:

Figs. 10A-10B illustrate an assay device and method for the detection of a DNA sequence in a sample; wherein the device is first brought into contact with the target to form a bridge between the electrodes (Fig. 10A), followed by functionalization of the bridge (Fig. 10B).

Page 22, lines 11-13, delete current paragraph and insert therefor:

Fig. 11 shows two exemplary current-voltage relationship of a functionalized bridge formed after metal deposition on a bridge-forming target as illustrated in Fig. 10.

Page 22, lines 14-16, delete current paragraph and insert therefor:

Figs. 12A-12B illustrate an assay device and method for the detection of a DNA sequence in a sample where a bridge formed (Fig. 12A) is functionalized by deposition of poly-*p*-phenylene vinylene (PPV) (Fig. 12B).

Page 22, lines 17-18, delete current paragraph and insert therefor:

Figs. 13A-13B illustrate another embodiment of an assay device and method for the detection of a DNA sequence in a sample where a bridge formed (Fig. 13A) is functionalized (Fig. 13B).

Page 22, line 19, delete current paragraph and insert therefor:

Fig. 14 shows an embodiment of the invention for assaying of an antigen.

Page 22, lines 20-21, delete current paragraph and insert therefor:

Fig. 15 illustrates an embodiment of immobilization of oligonucleotide recognition moieties onto the electrodes.

Page 22, lines 22-23, delete current paragraph and insert therefor:

Fig. 16 shows a scheme for synthesizing an oligonucleotide, as described in Example 1(a).

Page 22, lines 24-25, delete current paragraph and insert therefor:

Fig. 17 shows a fluorescently labeled λ-DNA bridge stretched between two gold electrodes (dark strips) 12 μm apart.

Page 22, lines 26-28, delete current paragraph and insert therefor:

Fig. 18 shows atomic force microscope (AFM) images of a DNA bridge coated by silver connecting two gold electrodes 12 μm apart 1.5 μm and field size.

Page 23, lines 1-5, delete current paragraph and insert therefor:

Fig. 19 is two terminal I-V curves of a DNA bridge coated by silver prepared according to Example 8. The arrows indicate the voltage scan direction. The solid-line curves are repeated scans and demonstrate the stability of the samples. Note the different asymmetry in the I-V curves corresponding to the two scanning directions.

Page 23, lines 6-11, delete current paragraph and insert therefor:

Fig. 20 shows the I-V curves of a different silver wire in which the silver growth was more extensive than in Fig. 19. The more extensive silver growth resulted in a smaller current plateau, on the order of 0.5V, and a lower resistance (13MΩ vs. 30 MΩ in Fig. 17). By driving large currents through the wire, the plateau has been eliminated to give an ohmic behavior (dashed line), over the whole measurement range.

Page 23, lines 12-13, delete current paragraph and insert therefor:

Figs. 21A-21F show a schematic representation of the steps of performing a detection assay for the presence of a nucleic acid sequence in a sample. In Fig. 21(A) two conducting electrodes are defined on an insulating substrate. In Fig. 21(B) a monolayer of oligonucleotides is constructed in the gap between the pair of electrodes. In Fig. 21(C) upon contact with the sample, the target oligonucleotide binds to the recognition moiety. In Fig. 21(D) the assay device bearing the DNA duplex is contacted with a solution for inducing the elongation of the DNA skeleton. In Fig. 21(E) the assay device is exposed to a solution containing gold colloids to form DNA molecules with pendant gold colloids; finally. In Fig. 21(F) the assay device is exposed to a solution to form a conductive path bridging the two electrodes.

Page 23, lines 14-15, delete current paragraph and insert therefor:

Fig. 22 shows a schematic representation of the steps of a method for preparation of a chip for nucleic acid attachment.

Page 23, lines 16-18, delete current paragraph and insert therefor:

Fig. 23 shows a schematic representation of the steps of a method for covalent attachment of nucleic acid probes to the chip produced by the method described in Fig. 22.

Page 23, lines 19-21, delete current paragraph and insert therefor:

Fig. 24 shows a schematic representation of an assay set comprising two electrodes being open ends of conductive layers which are separated from each other by the open ends of a non-conductive (insulating) layer.

Page 23, lines 22-23, delete current paragraph and insert therefor:

Figs. 25A-25B show a schematic representation of a process for attaching a biotin group shown in Fig. 25(B) to target nucleic acids in a sample shown in Fig. 25(A).

Page 23, lines 24-25, delete current paragraph and insert therefor:

Fig. 26 shows schematically hybridization between biotin-containing nucleic acid targets in a sample and recognition moieties on a chip.

Page 23, lines 26-27, delete current paragraph and insert therefor:

Fig. 27 shows essentially the same as Fig. 26, wherein the recognition moieties are present on electrodes of Fig. 24.

Page 24, lines 1-3, delete current paragraph and insert therefor:

Fig. 28 shows schematically attachment of avidin-containing nucleation-center forming entities to biotin-containing targets which are present in a target-recognition moiety complex.

Page 24, lines 4-5, delete current paragraph and insert therefor:

Fig. 29 shows essentially the same as Fig. 28, wherein the complexes are present on the electrodes of Fig. 24.

Page 24, lines 6-7, delete current paragraph and insert therefor:

Fig. 30 shows schematically the process of deposition of gold in one assay set comprising two electrodes.

Page 24, lines 8-14, delete current paragraph and insert therefor:

Fig. 31 shows three AFM pictures of a chip which underwent a process of contact with sample, attachment of nucleation centers and exposure to reagents allowing formation of gold crystallization wherein: Fig. 31(A) shows a chip lacking DNA binding moieties. Fig. 31(B) shows a chip having binding moieties which are partially complementary to sequence of target in a sample. Fig. 31(C) shows a chip having recognition moieties which are fully complementary to target sequences.